1 In the claims:

2 1.   A method for retransmission of transactions in a multi-processor computer

3 architecture, comprising:

4   at a source node in the computer architecture, the source node comprising a

5 retransmit buffer, designating a transaction for transmission to a destination node in the

6 computer architecture, the destination node comprising a receive buffer, wherein the

7 transaction is designated for transmission over a first path in a first flow control class;

8   retrieving a sequence number for the designated transaction;

9   comparing the retrieved sequence number for the designated transaction to

10 sequence numbers in the retransmit buffer, wherein if the comparison does not show a

11 match:

12   attaching the retrieved sequence number to the designated transaction,

13   placing the designated transaction in the retransmit buffer, and

14   sending the designated transaction to the destination node; and

15 wherein if the comparison shows a match, transmitting the designated transaction over a

16 second path.

17 2.   The method of claim 1, wherein the designated transaction in the retransmit buffer

18 times out, comprising:

19   retrieving the sequence number of a most recent transaction sent to the destination

20 node along the first path;

21   sending a probe request to the destination node along the second path, the probe

22 request including the sequence number of the timed-out transaction and the sequence

23 number of the most recent transaction;

24   deconfiguring the first path; and

25   updating the sequence number in the retransmit buffer.

26 3.   The method of claim 2, wherein the destination node receives the probe request,

27 the method at the destination node, comprising:

28   determining a sequence number for a most recent transaction entry in the receive

29 buffer for a transaction from the source node along the first path and the first flow control

30 class; and

31   determining:

32   (a) if the sequence number for the most recent transaction entry in the

33 receive buffer equals the timed-out transaction sequence number minus one, and

1   (b) if the sequence number for the most recent transaction entry in the

2 receive buffer lies between the timed-out transaction sequence number and the sequence

3 number of the last transaction sent by the source node.

4   4.   The method of claim 3, wherein if either (a) or (b) are met:

5   sending a probe response to the source node along the second path;

6   indicating to the source node if the timed-out transaction is received at the

7 destination node; and

8   sending the source node the most recent sequence number acknowledged.

9   5.   The method of claim 4, wherein the source node receives the probe response,

10 comprising resuming transmission for all transactions in the retransmit buffer for which

11 an acknowledgement has not been received.

12   6.   The method of claim 3, wherein neither (a) nor (b) are met, and wherein an error

13 condition is designated.

14   7.   The method of claim 4, further comprising:

15   sending a plunge transaction to the destination node over the first path, the plunge

16 transaction indicating a sequence number for retransmission of transactions should the

17 first path be reconfigured; and

18   updating the sequence number.

19   8.   The method of claim 7, wherein the destination node receives the plunge

20 transaction, the method at the destination node, comprising:

21   determining if the first path is deconfigured from the source node; and

22   if the first path is deconfigured from the source node, sending a plunge response

23 to the source node over the first path.

24   9.   The method of claim 8, wherein the destination node determines that the first path

25 is not deconfigured, wherein an error condition exists, comprising:

26   informing the source node; and

27   deconfiguring the first path from the destination node.

28   10.   The method of claim 8, further comprising:

29   receiving the plunge response; and

30   reconfiguring the first path from the source node.

31   11.   The method of claim 2, wherein the probe request times out, comprising:

32   determining if a third path is available;

33   if the third path is available:

34   sending a second probe response along the third path,

1   deconfiguring the second path, and

2   updating the sequence number in the retransmit buffer; and

3   if the third path is not available, designating an error condition.

4   12.   The method of claim 1, wherein the destination node receives the designated

5 transaction, the method at the destination node, comprising:

6   determining from the receive buffer a sequence number from a most recent

7 transaction from the source node along the first path in the first flow control class; and

8   comparing the sequence numbers of the designated transaction and the most

9 recent transaction.

10   13.   The method of claim 12, wherein the sequence number of the designated

11 transaction is subsequent to the sequence number of the most recent transaction,

12 comprising, determining if the first path is configured.

13   14.   The method of claim 13, wherein the first path is configured, comprising:

14   accepting the transaction;

15   updating a receive sequence number in the receive buffer; and

16   sending an acknowledgement to the source node along the first path.

17   15.   The method of claim 12, wherein the sequence number of the designated

18 transaction is not subsequent to the sequence number of the most recent transaction,

19 comprising dropping the transaction.

20   16.   An apparatus for retransmission of transactions in a multi-processor computer

21 architecture, comprising:

22   a source node having a retransmit buffer, wherein the source node stores

23 transactions transmitted from the source node;

24   a send_seqid table comprising a sequence number for each transaction sent from

25 the source node;

26   a destination node comprising a receive buffer, wherein the destination node

27 stores transactions transmitted from the destination node;

28   a receive_seqid table comprising a sequence number for each transaction sent

29 from the destination node, wherein the source node sends normal transactions to the

30 destination node and the destination node sends acknowledgements for the normal

31 transactions to the source node, wherein if the source node does not receive an

32 acknowledgement within a specified time, a corresponding normal transaction in the

33 retransmit buffer times out; and

1   a probe transaction, whereby the source node queries the destination node for a

2   timed-out transaction.

3   17.   The apparatus of claim 16, wherein the probe transaction comprises a sequence

4   number of the timed-out transaction and the sequence number of the most recent

5   transaction sent from the source node to the destination node, wherein the source node

6   comprises:

7   means for deconfiguring the first path; and

8   means for updating the sequence number in the retransmit buffer.

9   18.   The apparatus of claim 17, wherein the destination node receives the probe

10   transaction, the destination node, further comprising:

11   means for determining a sequence number for a most recent transaction entry in

12   the receive buffer for a transaction from the source node along the first path and the first

13   flow control class; and

14   means for determining:

15   (a) if the sequence number for the most recent transaction entry in the

16   receive buffer equals the timed-out transaction sequence number minus one, and

17   (b) if the sequence number for the most recent transaction entry in the

18   receive buffer lies between the timed-out transaction sequence number and the sequence

19   number of the last transaction sent by the source node.

20   19.   The apparatus of claim 18, wherein if either (a) or (b) are met, the destination

21   node:

22   sends a probe response to the source node along the second path;

23   indicates to the source node if the timed-out transaction is received at the

24   destination node; and

25   sends the source node the most recent sequence number acknowledged.

26   20.   The apparatus of claim 19, wherein the source node receives the probe response,

27   wherein the source node comprises means for resuming transmission for all transactions

28   in the retransmit buffer for which an acknowledgement has not been received.

29   21.   The apparatus of claim 18, wherein neither (a) nor (b) are met, and wherein an

30   error condition is designated.